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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-2828
Plant ID No.:	003-00137
Applicant:	Allmine Paving, LLC (Allmine)
Facility Name:	Inwood Facility
Location:	Inwood, Berkeley County
SIC Code:	2951
Application Type:	Construction
Received Date:	January 29, 2010
Engineer Assigned:	Jerry Williams II, P.E.
Fee Amount:	$2,000.00
Date Received:	January 29, 2010
Complete Date:	February 23, 2010
Due Date:	May 24, 2010
Applicant Ad Date:	February 12, 2010
Newspaper:	*The Journal* (Martinsburg)
UTM's:	Easting: 757.58 km Northing: 4366.22 km Zone: 17
Description:	Construction of an asphalt processing and storage facility.

DESCRIPTION OF PROCESS

The following process description was taken from Permit Application R13-2828:

The proposed asphalt processing and storage facility will prepare processed asphalt for use in manufacturing processes offsite. The process begins with the unloading of raw material from trucks and railcars. The raw material will be bottom unloaded from railcars using three inch diameter flex hoses and the tank trucks will be back unloaded using three inch flexible hosing directly from the pump discharge. Due to the direct coupling of the transfer hoses, potential fugitive losses from the unloading process are considered to be negligible. The raw material will be transported to one of four storage tanks, two tanks will be 1,134,000 gallons in capacity, and two tanks will be 567,000 gallons in capacity (Emission Unit 1S). Each raw material storage tank will be heated via hot oil transfer to maintain the stored raw material at a temperature at which it can be readily pumped through the process. Emissions generated by the

asphalt fumes displaced from the storage tanks during loading will be vented to a thermal oxidizer.

The preparation of a batch of processed asphalt will begin by the raw material being pumped from the storage tanks to one of two 119,000 gallon raw material blend/recirculation tanks (Emission Unit 2S). Used motor oil will be added to the raw material up to 10% and modifier will be added to the batch. The used motor oil will be stored in two 119,000 gallon tanks (Emission Unit 10S) and modifier will be stored in a 6,400 gallon tank. The addition of used motor oil is a commonly accepted practice for recycling motor oil and represents a cost savings in raw materials to the facility.

The raw material blend/recirculation tanks will be heated via hot oil heat transfer as well as the raw material heat exchanger in which the hot exhaust from the thermal oxidizers is used to heat the raw material to the appropriate temperatures in the process tanks. The heated raw material will then be pumped to one of the four process tanks (Emission Unit 3S). The processing reaction is exothermic; therefore, the process tanks are equipped with water jacketing for cooling. The reaction results in the release of compounds such as hydrogen sulfide, methane, water, carbon monoxide, and carbon dioxide.

The exhaust gases from the process tanks will first be drawn through three knockout tanks where water and oil will be condensed and removed from the process tank exhaust. The condensed oil and water will be directed to a 15,000 gallon knockout oil tank (Emission Unit 13S) for shipment off-site.

Gaseous emissions for the process tanks, with oil and water removed in the knockout tanks, will vent to a thermal oxidizer emission control system containing two natural gas units, each with a rated heat input capacity of 19.2 MMBTU/hr (DFTO System – Control Device 1C/2C). The DFTOs will destroy VOC, PM and organic HAPs in the exhaust fumes with a minimum destruction efficiency of 98%. It should be noted that the hydrogen sulfide in the process tank exhaust is converted to sulfur dioxide in the DFTO. Also, while a small amount of CO is detectable in process tank fumes prior to the DFTO, the major source of CO emissions is incomplete combustion of hydrocarbons to carbon dioxide in the thermal oxidizer control device.

From the process tanks, the processed asphalt will be pumped to one of three heated processed asphalt tanks for storage (Emission Unit 4S) and then to the loading racks (Emission Unit 5S) for transfer off-site. Emissions result from the displacement of asphalt fumes during the loading of the processed asphalt storage tanks and the loading of tank trucks at the loading racks. The processed asphalt tanks and loading rack emissions will also vent to the DFTO for control. Similar to the raw material storage tanks and blend/recirculation tanks, each processed asphalt storage tank will be heated via hot oil heat exchange.

The facility will also produce up to 5,000 tons per year of a blended product (Modified Asphalt). The emission units associated with this process include a hopper, storage tanks, and mix tank. The storage tanks and mix tanks will be heated via hot oil heat transfer. Emissions from these tanks will vent to the DFTO. The hopper will be a fugitive particulate matter source.

In addition to the asphalt processing equipment, the proposed facility will have a 9.9 MMBTU/hr natural gas-fired hot oil heater (Emission Unit 6S) to heat the oil used to transfer heat to the asphalt storage tanks. The hot oil heater is equipped with one 2,000 gallon hot oil expansion tank. A 9.9 MMBTU/hr natural gas fired boiler (Emission Unit 7S) will be used to provide process steam to heat asphalt transfer lines and for use in fire suppression at the facility. A natural gas-fired emergency generator (Emission Unit 12S) will also be installed at this facility.

ALTERNATE OPERATING SCENARIO

The facility will initially operate under the normal operating scenario above. However, the facility plans to implement the alternate operating scenario at a point in time after initial facility startup. The desired properties of the final product can be changed by altering the blend of raw materials. The alternate scenario incorporates the use of a catalyst or "alternative Modifier" which will be blended into the mixture of raw materials going to the process tanks. As with normal operations, the alternate scenario will operate in a batch mode. The alternative Modifier will reduce residence time in the process tanks, requiring less energy expenditure to produce the processed asphalt and reducing emissions of criteria pollutants from the process on a lb/ton basis.

However, resulting emissions under the alternate operating scenario, two pollutants have been identified that could potentially have increased emission rates over normal operating conditions: hydrogen chloride (HCl) and naphthalene. Due to the higher HCl emissions during the alternate operating scenario, additional control will be employed when the alternative Modifier is used in the batch process. Under this alternative scenario, gases from each DFTO will be vented to a quenching system of water sprays, and then to a wet scrubber (one scrubber per DFTO stack). Based on manufacturer's specifications, the scrubbers will provide 99% control efficiency for emissions of HCl, PM, and SO_2. The scrubbers will be packed bed units with polypropylene packing and entrainment separators employing a scrubbing liquor of water and sodium hydroxide (NaOH).

SITE INSPECTION

A site inspection was conducted on February 24, 2010 by Joseph Kreger of the EPRO. According to Mr. Kreger, this facility will be located East of I-81, near exit #8. He spoke with Anthony Martini, Senior Civil Engineer (847-696-1400) and with Lydia Wagner (412-882-4050) who is a consultant with Bradburne, Briller and Johnson. Both answered his questions. At the time of this inspection no production equipment was on site. The nearest residences to this facility are located ½ mile to the North East and 0.35 miles to the South. The site itself is suitable for construction. He did have a concern regarding possible fugitive VOC emissions from this site. In the past his office had received several odor complaints from an asphalt tank farm that is located approximately 1 mile to the south of this facility. However, this facility will be utilizing Direct Fired Thermal Oxidizers which have a 98% control efficiency for VOCs.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Allmine's Inwood Facility emission units are summarized in the following table:

Emission Unit ID	Emission Point ID	Emission Unit Description	Design Capacity	Control Device
1S	1E/2E	Four (4) Raw Material Storage Tanks and assoc. truck/railcar unloading to tanks	Two (2) tanks @ 390,000 gal Two (2) tanks @ 340,000 gal	1C/2C DFTO #1 and #2
2S	1E/2E	Two (2) Raw Material Blend/Recirculation Tanks	119,000 gal each	1C/2C DFTO #1 and #2
3S	1E/2E	Four (4) Process Tanks	Total for 4 Tanks is 220,000 tpy asphalt	1C/2C DFTO #1 and #2
4S	1E/2E	Three (3) Processed Asphalt Storage Tanks	119,000 gal each	1C/2C DFTO #1 and #2
5S	1E/2E	Processed Asphalt Loading Rack	NA	1C/2C DFTO #1 and #2
6S	3E	Natural Gas Fired Hot Oil Heater	9.9 MMBTU/hr	None
7S	4E	Natural Gas Fired Boiler	9.9 MMBTU/hr	None
8S	1E/2E	Two (2) Modified Asphalt Mix Tanks	3,000 gal each	1C/2C DFTO #1 and #2
9S	1E/2E	One (1) Modified Asphalt Storage Tank	6,000 gal	1C/2C DFTO #1 and #2
10S	5E	Two (2) Used Motor Oil Storage Tanks	119,000 gal each	None
11S	1E/2E	Two (2) Product Tanks	25,500 gal each	1C/2C DFTO #1 and #2
12S	6E	Emergency Generator	100 kW	None

Maximum controlled point source emissions from Allmine's Inwood Facility are summarized in the table below.

Emission Point ID	Emission Unit ID	Description	Pollutant	Maximum Controlled Emission Rate	
				Hourly (lb/hr)	Annual (ton/year)
1E/2E	1S, 2S, 3S, 4S, 5S, 8S, 9S, 11S	Direct Fired Thermal Oxidizer	Particulate Matter-10	17.50	55.00
			Sulfur Dioxide	31.50	99.00
			Carbon Monoxide	27.50	85.00
			Nitrogen Oxides	2.10	6.60
			Volatile Organic Compounds	3.50	9.70
			Total HAPs	0.55	1.70
3E	6S	Natural Gas Hot Oil Heater	Particulate Matter-10	0.07	0.32
			Sulfur Dioxide	0.01	0.03
			Carbon Monoxide	0.82	3.60
			Nitrogen Oxides	0.49	2.10
			Volatile Organic Compounds	0.05	0.23
			Total HAPs	0.02	0.08
4E	7S	Natural Gas Fired Boiler	Particulate Matter-10	0.07	0.32
			Sulfur Dioxide	0.01	0.03
			Carbon Monoxide	0.82	3.60
			Nitrogen Oxides	0.49	2.10
			Volatile Organic Compounds	0.05	0.23
			Total HAPs	0.02	0.08
5E	10S	Used Oil Tank	Volatile Organic Compounds	0.01	0.01
6E	12S	Natural Gas Fired Emergency Generator	Particulate Matter-10	0.02	0.01
			Sulfur Dioxide	0.01	0.01
			Carbon Monoxide	0.74	0.18
			Nitrogen Oxides	0.04	0.01
			Volatile Organic Compounds	0.04	0.01
			Total HAPs	0.04	0.01
7E	13S	Knockout Accumulation tank	Volatile Organic Compounds	0.01	0.01

Emissions from the DFTOs (1E/2E) shall not exceed the following limits:

Pollutant	Emission Point ID# 1E Maximum Hourly Emissions (lb/hr)[1]	Emission Point ID# 2E Maximum Hourly Emissions (lb/hr)[1]	Combined Emission Points ID# 1E/2E Maximum Annual Emissions (ton/year)[2]
Particulate Matter-10	17.50	17.50	55.00
Sulfur Dioxide	31.50	31.50	99.00
Carbon Monoxide	27.50	27.50	85.00
Nitrogen Oxides	2.10	2.10	6.60
Volatile Organic Compounds	3.50	3.50	9.70
Total HAPs	0.55	0.55	1.70

1. DFTO1 (Emission Point ID# 1E) and DFTO2 (Emission Point ID# 2E) can be utilized alone or together, as required by the air pollutant loading to the control devices.

2. The combined annual air pollutant emission rates from Emission Point ID# 1E/2E shall not exceed the Combined Emission Points ID# 1E and 2E Maximum Annual Emissions limits listed above, whether the permittee operates DFTO1 and DFTO2 alone, or both DFTO1 and DFTO2 at the same time.

Emissions from the facility were calculated by Allmine for both the normal operating scenario (above) and the alternative scenario. The estimated emissions were based on Emission Factors that were developed through testing in this industry. The alternate scenario incorporates the use of a catalyst or "alternative Modifier" which will be blended into the mixture of raw materials going to the process tanks. As with normal operations, the alternate scenario will operate in a batch mode. The alternative Modifier will reduce residence time in the process tanks, requiring less energy expenditure to produce the processed asphalt and reducing emissions of criteria pollutants from the process on a lb/ton basis.

However, resulting emissions under the alternate operating scenario, two pollutants have been identified that could potentially have increased emission rates over normal operating conditions: hydrogen chloride (HCl) and naphthalene. Due to the higher HCl emissions during the alternate operating scenario, additional control will be employed when the alternative Modifier is used in

the batch process. Under this alternative scenario, gases from each DFTO will be vented to a quenching system of water sprays, and then to a wet scrubber (one scrubber per DFTO stack). Based on manufacturer's specifications, the scrubbers will provide 99% control efficiency for emissions of HCl, PM, and SO_2. The scrubbers will be packed bed units with polypropylene packing and entrainment separators employing a scrubbing liquor of water and sodium hydroxide (NaOH).

The following table summarizes both the normal operating scenario and the alternative operating scenario.

Pollutant	Normal Operating Scenario		Alternate Operating Scenario	
	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Particulate Matter	35.00	56.00	0.50	1.20
Sulfur Dioxide	63.00	99.00	0.32	0.55
Carbon Monoxide	57.00	93.00	57.00	93.00
Nitrogen Oxides	5.10	11.00	5.10	11.00
Volatile Organic Compounds	7.10	10.00	7.10	10.00
Total HAPs	1.10	1.90	0.90	1.50

REGULATORY APPLICABILITY

Unless otherwise stated WVDEP DAQ did not determine whether the permittee is subject to an area source air toxics standard requiring Generally Achievable Control Technology (GACT) promulgated after January 1, 2007 pursuant to 40 CFR 63, including the area source air toxics provisions of 40 CFR 63, Subpart ZZZZ, and 40 CFR 63 Subpart AAAAAAA.

The following rules apply to the facility:

45CSR2 (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers)

Allmine would be subject to the opacity requirements in 45CSR2, which is 10% opacity based on a six minute block average.

45CSR4 (To Prevent and Control the Discharge of Air Pollutants into the Open Air which Causes or Contributes to an Objectionable Odor or Odors)

45CSR4 states that an objectionable odor is an odor that is deemed objectionable when in the opinion of a duly authorized representative of the Air Pollution Control Commission (Division of Air Quality), based upon their investigations and complaints, such odor is objectionable. This will be a new facility, therefore no odors have been deemed objectionable.

45CSR7 (To Prevent and Control Particulate Matter Air Pollution from Manufacturing Processes and Associated Operations)

45CSR7 sets forth requirements that include opacity, and particulate matter emission limits based on the weight of material that is processed. Allmine's Direct Fired Thermal Oxidizers (DFTOs) would be subject to the opacity limitations. 45CSR7 limits smoke and/or particulate matter into the open air to a maximum of 20% opacity at any time except for a maximum opacity of 40% for any period or periods aggregating no more than five (5) minutes in a sixty (60) minute period.

In regards to the weight emission standard set forth in 45CSR7, Allmine has several pieces of equipment that would be subject to this rule. The Raw Material Unloading/Storage (1S), Finished Product Loading (5S), and Modified Asphalt Processing/Storage (8S, 9S) would be considered "Type A" sources, which means they are manufacturing process that involves a physical change. The Finished Product Processing/Storage (2S, 3S, and 4S) would be considered a "Type D" source, which means it is a manufacturing process that involves a chemical change. The following table indicates the allowable emissions under 45CSR7.

Emission Unit/Description	Process Weight (lb/hr)	45CSR7 Allowable Emission Rate (lb/hr)
Raw Material Unloading/Storage (1S)	300,000 (600 gpm)	40
Finished Product Processing/ Storage (2S, 3S, 4S)	139,000 (50,000 gal/batch; 3 hours min. per batch)	21.2
Finished Product Loading (5S)	300,000 (600 gpm)	40
Modified Asphalt Processing/Storage (8S, 9S)	47,500	30
45CSR7 Allowable Emission Rate		**131.2**

Allmine's proposed particulate matter limit for these sources (1E/2E) is 35 lb/hr, therefore they meet this requirement.

45CSR10 (To Prevent and Control Air Pollution from the Emission of Sulfur Oxides)

45CSR10 Section 10.1 states that any fuel burning units having a design heat input less than ten (10) million BTU's per hour will be exempt from section 3 and sections 6 through 8. However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date. Therefore, the 9.9 MMBTU/hr Hot Oil Heater (5S) and the 9.9 MMBTU/hr Natural Gas Fired Boiler (6S) would meet this criteria.

45CSR10 Section 4.1 states that no person shall cause, suffer, allow or permit the emission into the open air from any source operation an in-stack sulfur dioxide concentration exceeding 2,000 parts per million by volume from existing source operations. Therefore, the DFTO's are limited to a maximum of 2,000 ppm_v.

Calculations performed by Allmine indicate that this value will range from 400 – 600 ppm_v.

45CSR10 Section 5.1 states no person shall cause, suffer, allow or permit the combustion of any refinery process gas stream or any other process gas stream that contains hydrogen sulfide in a concentration greater than 50 grains per 100 cubic feet of gas except in the case of a person operating in compliance with an emission control and mitigation plan approved by the Director and U. S. EPA. In certain cases very small units may be considered exempt from this requirement if, in the opinion of the Director, compliance would be economically unreasonable and if the contribution of the unit to the surrounding air quality could be considered negligible. Calculations performed by Allmine using an emission rate of 63 lb/hr, and an exhaust flow rate of 22,600 cfm, indicate that this value would be 32 grains per 100 cubic feet of gas.

45CSR10A Section 5.2 indicates that compliance tests shall be conducted in accordance with 40 CFR Part 60, Appendix A, Method 6 or other equivalent EPA testing method approved by the Secretary within one hundred eighty (180) days of start-up for new unit(s). The results of the initial test shall be a consideration in establishing a compliance testing frequency. Compliance tests shall be conducted at a frequency established in the approved monitoring plan.

45CSR10A Section 6.2 indicates that Allmine shall submit, to the Secretary for approval, a monitoring plan for each manufacturing process source(s) that describes the method the owner or operator will use to monitor compliance with the applicable emission standard set forth in section 4 of 45CSR10. The owner or operator of a manufacturing process source(s) may use CEMS, which shall be deemed to satisfy all of the requirements of an approved monitoring plan, or a monitoring plan as specified in subsection 6.4, in accordance with the provisions of this section.

45CSR13 (Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation)

45CSR13 applies to this source due to the fact that Allmine exceeds the regulatory emission threshold for criteria pollutants of 6 lb/hr and 10 ton/year, and Allmine is subject to a substantive requirement of an emission control promulgated by the Secretary.

45CSR16 (Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60)

45CSR16 applies to this source by reference of, 40CFR60, Subpart Kb, 40CFR60, Subpart UU, and 40CFR60, Subpart JJJJ. Allmine is subject to the recordkeeping, monitoring, and testing required by 40CFR60 Subpart Kb, 40CFR60 Subpart UU, and 40CFR60 Subpart JJJJ.

45CSR30 (Requirements for Operating Permits)

This permit does not affect 45CSR30 applicability. The source is a nonmajor source subject to 45CSR30.

40CFR60 Subpart Kb (Standards of Performance for Volatile Organic Liquid Storage Vessels)

The affected facility to which this subpart applies is each storage vessel with a capacity greater than or equal to 75 cubic meters (m^3) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984. This subpart does not apply to storage vessels with a capacity greater than or equal to 151 m^3 storing a liquid with a maximum true vapor pressure less than 3.5 kilopascals (kPa) or with a capacity greater than or equal to 75 m^3 but less than 151 m^3 storing a liquid with a maximum true vapor pressure less than 15.0 kPa.
The following table summarizes Allmine's tanks and their applicability to this rule.

Emission Unit ID	Material Stored	Design Capacity (m^3)	Max. True Vapor Pressure (TVP) (kPa)	Applicable to 40CFR60 Subpart Kb?
1S	Raw Material (260° F max)	2 tanks @ 4,292 m^3 2 tanks @ 2,146 m^3	0.25	No, TVP less than 3.5 kPa
2S	Raw Material (490° F max)	2 tanks @ 450 m^3	18.0	Yes, tank is greater than 151 m^3 and TVP greater than 3.5kPa
4S	Processed Asphalt (490° F max)	3 tanks @ 450 m^3	14.8	Yes, tank is greater than 151 m^3 and TVP greater than 3.5kPa
8S	Modified Asphalt	2 tanks @ 12 m^3	14.8	No, tank capacity is less than 75 m^3
9S	Modified Asphalt	23 m^3	14.8	No, tank capacity is less than 75 m^3
10S	Used Motor Oil (80° F max)	2 tanks @ 450 m^3	0.03	No, TVP less than 3.5 kPa
11S	Product Tank	97 m^3	14.8 kPa	No, tank is between 75 and 151 m^3 with a TVP less than 15 kPa
13S	Knockout Oil	57 m^3	NA	No, tank capacity is less than 75 m^3
DM	Modified Asphalt	25 m^3	NA	No, tank capacity is less than 75 m^3
DM	Hot Oil	8 m^3	NA	No, tank capacity is less than 75 m^3

The owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m^3 containing a VOL that, as stored, has a maximum true vapor pressure equal to or greater than 5.2 kPa but less than 76.6 kPa or with a design capacity greater than or equal to 75 m^3 but less than 151 m^3 containing a VOL that, as stored, has a maximum true vapor pressure equal to or greater than 27.6 kPa but less than 76.6 kPa, shall equip each storage vessel with one of the following:

1. A fixed roof in combination with an internal floating roof.
2. An external floating roof. An external floating roof means a pontoon-type or double-deck type cover that rests on the liquid surface in a vessel with no fixed roof.
3. A closed vent system and control device.
4. A system equivalent to those described in paragraphs (a) (1), (a) (2), or (a) (3) of this section as provided in §60.114b of this subpart.

The owner or operator of each storage vessel as specified in §60.112b(a) shall keep records and furnish reports as required by paragraphs (a), (b), or (c) of this section depending upon the control equipment installed to meet the requirements of §60.112b. The owner or operator shall keep copies of all reports and records required by this section, except for the record required by (c) (1), for at least 2 years. The record required by (c) (1) will be kept for the life of the control equipment.

40CFR60 Subpart UU (Standards of Performance for Asphalt Processing and Asphalt Roofing Manufacture)

The affected facilities to which this subpart applies are each saturator and each mineral handling and storage facility at asphalt roofing plants; and each asphalt storage tank and each blowing still at asphalt processing plants, petroleum refineries, and asphalt roofing plants. Therefore, Allmine's asphalt storage and process tanks would be subject to this subpart.

Allmine proposes to vent process emissions to DFTOs. 40CFR60 Section 60.473 establishes the criteria for which the control devices must be monitored.

The industry is exempted from the quarterly reports required under §60.7(c). Allmine is required to record and report the operating temperature of the control device during the performance test and, as required by §60.7(d), maintain a file of the temperature monitoring results for at least two years. Allmine will be required to conduct performance testing using EPA Method 5A (Determination of PM Emissions from Asphalt Processing), and use Method 9 to demonstrate compliance with opacity standards.

40CFR60 Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines)

Allmine's emergency generator is subject to 40CFR60 Subpart JJJJ, which sets forth emission limits, fuel requirements, installation requirements, and monitoring requirements based on the year of installation of the subject internal combustion engine. 40CFR60 Subpart JJJJ is applicable to owners and operators of emergency engines manufactured after January 1, 2009. The proposed 155 hp engine (12S) will be subject to this rule. The emission limits for this engine are the following: NOx – 2.0 g/hp-hr (0.68 lb/hr); CO – 4.0 g/hp-hr (1.37 lb/hr); and VOC – 1.0 g/hp-hr (0.35 lb/hr). The new proposed 237 hp engine (EPGEN-2) will be subject to this rule. The emission limits for these engines are the following: NOx – 2.0 g/hp-hr (1.04 lb/hr); CO – 4.0 g/hp-hr (2.09 lb/hr); and VOC – 1.0 g/hp-hr (0.52 lb/hr). Based on the manufacturer's specifications for these engines, the emission standards will be met. Allmine states that these engines are certified by the manufacturer to meet the requirements of 40CFR60 Subpart JJJJ; therefore no performance testing is required.

The following rules do not apply to the facility:

45CSR6 (Control of Air Pollution from the Combustion of Refuse)

This rule establishes emission standards for particulate matter and requirements for activities involving incineration of refuse which are not subject to, or are exempted from regulation under a federal counterpart for specific combustion sources. Because this facility is subject to 40CFR60 Subpart UU, they would be exempt from the provisions of 45CSR6.

40CFR60 Subpart Dc (Standards of Performance for Small Industrial/Commercial/Institutional Steam Generating Units)

This rule establishes emission standards for steam generating units with rated capacities greater than or equal to 10 MMBTU/hr and less than 100 MMBTU/hr. The Hot Oil Heater (5S) and Natural Gas Fired Boiler (6S) are below 10 MMBTU/hr. Therefore this rule does not apply.

40CFR63 Subpart ZZZZ (National Emission Standards for Reciprocating Ignition Internal Combustion Engines)

40CFR63 Subpart AAAAAAA (National Emission Standards for Hazardous Air Pollutants: Asphalt Processing Area Sources)

WVDEP DAQ did not determine whether the permittee is subject to an area source air toxics standard requiring Generally Achievable Control Technology (GACT) promulgated after January 1, 2007 pursuant to 40 CFR 63, including the area source air toxics provisions of 40 CFR 63, Subpart ZZZZ and 40 CFR 63, Subpart AAAAAAA.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

There will be small amounts of various non-criteria regulated pollutants emitted from the facility. However, due to the concentrations emitted, detailed toxicological information is not included in this evaluation.

The following information was obtained from USEPA's Air Toxic Website.

Formaldehyde
Formaldehyde is used mainly to produce resins used in particleboard products and as an intermediate in the synthesis of other chemicals. Exposure to formaldehyde may occur by breathing contaminated indoor air, tobacco smoke, or ambient urban air. Acute (short-term) and chronic (long-term) inhalation exposure to formaldehyde in humans can result in respiratory symptoms, and eye, nose, and throat irritation. Limited human studies have reported an association between formaldehyde exposure and lung and nasopharyngeal cancer. Animal inhalation studies have reported an increased incidence of nasal squamous cell cancer. EPA considers formaldehyde a probable human carcinogen (Group B1).

Carbonyl sulfide
Carbonyl sulfide is used as an intermediate in organic compound synthesis. Limited information is available on the health effects of carbonyl sulfide. Acute (short-term) inhalation of high concentrations of carbonyl sulfide may cause narcotic effects in humans. Carbonyl sulfide may also irritate the eyes and skin in humans. No information is available on the chronic (long-term), reproductive, developmental, or carcinogenic effects of carbonyl sulfide in humans. EPA has not classified carbonyl sulfide with respect to potential carcinogenicity.

Hydrochloric acid
Hydrochloric acid has many uses. It is used in the production of chlorides, fertilizers, and dyes, in electroplating, and in the photographic, textile, and rubber industries. Hydrochloric acid is corrosive to the eyes, skin, and mucous membranes. Acute (short-term) inhalation exposure may cause eye, nose, and respiratory tract irritation and inflammation and pulmonary edema in humans. Acute oral exposure may cause corrosion of the mucous membranes, esophagus, and stomach and dermal contact may produce severe burns, ulceration, and scarring in humans. Chronic (long-term) occupational exposure to hydrochloric acid has been reported to cause gastritis, chronic bronchitis, dermatitis, and photosensitization in workers. Prolonged exposure to low concentrations may also cause dental discoloration and erosion. EPA has not classified hydrochloric acid for carcinogenicity.

Ethylbenzene
Ethylbenzene is mainly used in the manufacture of styrene. Acute (short-term) exposure to ethylbenzene in humans results in respiratory effects, such as throat irritation and chest constriction, irritation of the eyes, and neurological effects such as dizziness. Chronic (long-term) exposure to ethylbenzene by inhalation in humans has shown conflicting results regarding its effects on the blood. Animal studies have reported effects on the blood, liver, and kidneys from chronic inhalation exposure to ethylbenzene. Limited information is available on the carcinogenic effects of ethylbenzene in humans. In a study by the National Toxicology Program (NTP), exposure to ethylbenzene by inhalation resulted in an increased incidence of kidney and

testicular tumors in rats, and lung and liver tumors in mice. EPA has classified ethylbenzene as a Group D, not classifiable as to human carcinogenicity.

Toluene
Toluene is added to gasoline, used to produce benzene, and used as a solvent. Exposed to toluene may occur from breathing ambient or indoor air. The central nervous system (CNS) is the primary target organ for toluene toxicity in both humans and animals for acute (short-term) and chronic (long-term) exposures. CNS dysfunction and narcosis have been frequently observed in humans acutely exposed to toluene by inhalation; symptoms include fatigue, sleepiness, headaches, and nausea. CNS depression has been reported to occur in chronic abusers exposed to high levels of toluene. Chronic inhalation exposure of humans to toluene also causes irritation of the upper respiratory tract and eyes, sore throat, dizziness, and headache. Human studies have reported developmental effects, such as CNS dysfunction, attention deficits, and minor craniofacial and limb anomalies, in the children of pregnant women exposed to toluene or mixed solvents by inhalation. Reproductive effects, including an association between exposure to toluene and an increased incidence of spontaneous abortions, have also been noted. However, these studies are not conclusive due to many confounding variables. EPA has classified toluene as a Group D, not classifiable as to human carcinogenicity.

Benzene
Benzene is found in the air from emissions from burning coal and oil, gasoline service stations, and motor vehicle exhaust. Acute (short-term) inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic (long-term) inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia, in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests. Increased incidence of leukemia (cancer of the tissues that form white blood cells) have been observed in humans occupationally exposed to benzene. EPA has classified benzene as a Group A, human carcinogen.

AIR QUALITY IMPACT ANALYSIS

The facility will not be a major source of HAP's as defined by 45CSR14. Based on the nature of the emissions and the annual emission rate, no air quality impact analysis was performed.

MONITORING OF OPERATIONS

Allmine will be required to perform the following monitoring, recordkeeping, reporting, and testing (MRRT):

1. Perform all applicable MRRT for tanks subject to 40CFR60 Subpart Kb.
2. Monitor, record, and report the temperature in the combustion zones of the DFTOs (40CFR60 Subpart UU).
3. Submit a 45CSR10 SO_2 monitoring plan.
4. Conduct initial performance testing with Method 5A for PM and Method 9 for Opacity for the DFTOs (40CFR60 Subpart UU, 45CSR6, 45CSR7)
5. Conduct initial performance testing with Method 6 for the DFTOs (45CSR10).
6. Maintain records of the amount of natural gas consumed in the emergency generator (12S).
7. Maintain records of testing conducted in accordance with the permit. Said records shall be maintained on-site.
8. Maintain the corresponding records specified by the on-going monitoring requirements of and testing requirements of the permit.
9. Maintain records of the visible emission opacity tests conducted per the permit.
10. The records shall be maintained on site by Allmine for a period of five (5) years.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates Allmine's Inwood Facility meets all the requirements of applicable regulations. Therefore, impact on the surrounding area should be minimized and it is recommended that the Berkeley County location should be granted a 45CSR13 construction permit for their facility.

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Jerry Williams II, P.E.
Engineer

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Date